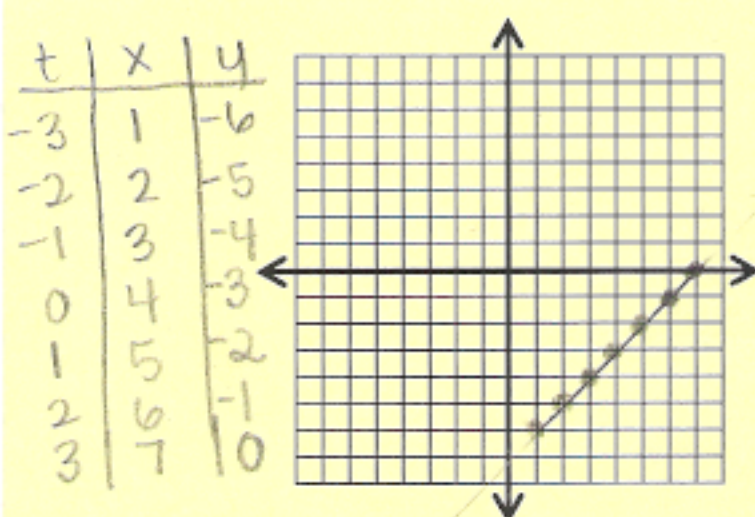


IV. Graph each pair of parametric equations for the interval $-3 \leq t \leq 3$

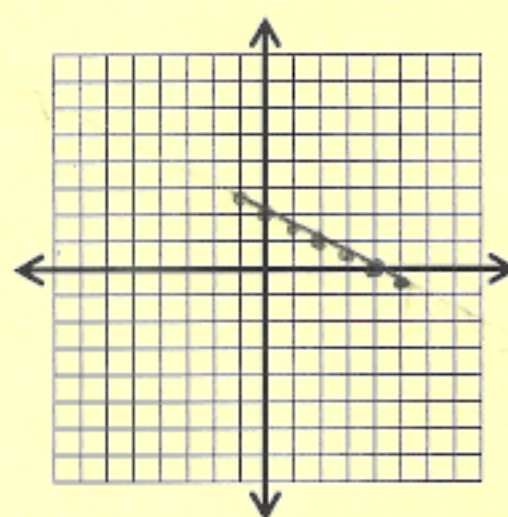
1. $x(t) = t + 4$

$y(t) = t - 3$



2. $x(t) = 2 - t$

$y(t) = \frac{1}{2}t + 1$



t	x	y
-3	5	-0.5
-2	4	0
-1	3	0.5
0	2	1
1	1	1.5
2	0	2
3	-1	2.5

V. Write each pair of parametric equations as a single equation in x and y.

1. $x(t) = t + 4$ $x = t + 4$ $x - 4 = t$

$y(t) = 1 - 2t$ $y = 1 - 2t$
 $2t = -y + 1$
 $t = \frac{-y + 1}{2}$

$x - 4 = \frac{-y + 1}{2}$
 $2x - 8 = -y + 1$

$y + 2x = 9$
 $y = -2x + 9$

2. $x(t) = 4t$ $x = 4t$ $t = \frac{x}{4}$

$y(t) = 3t - 1$ $y = 3t - 1$
 $y = 3\left(\frac{x}{4}\right) - 1$
 $y = \frac{3x}{4} - 1$

3. $x(t) = 3t$ $x = 3t$ $\frac{x}{3} = t$

$y(t) = t^2$ $y = t^2$
 $y = \left(\frac{x}{3}\right)^2$
 $y = \frac{x^2}{9}$

VI. Problem solving.

Your candy factory is making chocolate covered-covered peanuts and chocolate-covered pretzels. For each case of peanuts, you make \$40 profit and for each case of pretzels, you make \$55 profit. The table below shows the number of hours needed for each.

	Peanuts (x)	Pretzels (y)	Max. Hours
Machine hours	2 hours	6 hours	150 hours
Person hours	5 hours	4 hour	155 hours

*Profit
 $P = 40x + 55y$

Constraints:

Machine $2x + 6y \leq 150$
 Person $5x + 4y \leq 155$

$L_1 \rightarrow y = -\frac{1}{3}x + 25$

Vertices:

$(0, 25)$ $(31, 0)$ $(0, 0)$
 $(15, 20)$

$4y = -5x + 155$
 $L_2 \rightarrow y = -\frac{5}{4}x + 38.75$

Number produced by each process, and max. profit.

peanuts: 15 cases
 Pretzels: 20 cases

max $P = 40(15) + 55(20) = \$1100$

